

REMARKS

Withdrawn Claims

Claims 46, 47, 50, 51 and 76-82 have been withdrawn from consideration. The Applicant has cancelled claims 46, 47, 50, 51 and 76-82 without prejudice for possible submission in a continuing application.

Allowable Claims

Claims 12, 60, 65, 70 and 71 have been objected to, but have been indicated as allowable if rewritten in independent form. To that end, the Applicant has rewritten claims 12, 60, 65, 70 and 71 in independent form. Additionally, claims 35-37, 72 and 73 have been amended to depend from rewritten independent claim 71. Accordingly, the Applicant submits that rewritten independent claims 12, 60, 65, 70 and 71 and claims 35-37 and 72-74 depending from rewritten independent claim 71 are in condition for allowance.

Claim Rejections – 35 USC §102 and 103

Claims 1, 2, 5-7, 9-11, 13, 18, 20, 34, 52, 54, 56, 59, 62-64, 68 and 73-75 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,669,909 to Zdeblick et al. (hereafter the '909 patent). Additionally, claims 8, 14, 15, 17, 35-37, 61, 66, 67, 69 and 72 were rejected under 35 U.S.C. §103(a) as being unpatentable over the '909 reference in view of U.S. Patent No. 5,593,409 to Michelson (hereafter the '409 patent).

Independent Claim 1 and Dependent Claims 2, 5-11, 14, 15, 17, 18, 20, 59 and 61

Independent claim 1 has been amended to include the subject matter recited in dependent claim 60, which has been indicated as allowable. Specifically, independent claim 1 now recites, among other elements and features, an elongated body having a first end wall, a second end wall and a side wall cooperating to define an interior chamber, with "said first and second end walls being fixed and non-removable relative to said elongated body".

Page 11 of 16

Response to final Office Action and Advisory Action
Application Serial No. 09/869,813
Inventors: Boyd et al.
Filing Date: January 3, 2002

The Applicant therefore submits that independent claim 1, as amended, is patentable over the cited patent references. Accordingly, the Applicant respectfully requests withdrawal of the rejection of independent claim 1 and allowance of the same. Additionally, claims 2, 5-11, 14, 15, 17, 18, 20, 59 and 61 depend either directly or indirectly from independent claim 1, and are submitted to be patentable for at least the reasons supporting the patentability of independent claim 1. The Applicant notes that dependent claim 17 has been amended to correct an informality.

Independent Claim 13 and Dependent Claims 62-70

Independent claim 13 recites, among other elements and features, an elongated body having a side wall connecting first and second ends and defining an interior chamber, a side wall discontinuity extending along a length of the body and configured for nesting with an adjacent spacer, with the side wall discontinuity defining a side wall opening to the interior chamber, and “wherein said side wall opening is sized to extend along at least about 50% of said length of said body to allow passage of osteogenic material into said interior chamber”.

With regard to the ‘909 patent, the disclosed implant does not include a side wall opening that “is sized to extend along at least about 50% of said length of said body to allow passage of osteogenic material into said interior chamber”, as recited in independent claim 13. Although the ‘909 patent teaches that the implant body includes openings 24, 25 extending through the side walls 22 of the implant, the openings 24, 25 clearly do not extend along at least about 50% of the length of the implant body. (See Figures 2 and 3). Indeed, the ‘909 specifically indicates that “the overall length of the device [is] 26 mm” (col. 7, lines 46-47; emphasis added), and “the vascularization opening 24 is generally rectangular in shape having dimensions of 6.0 mm by 7.0 mm [and] the vascularization opening 25 is rectangular with dimensions of 4.0 mm by 5.0 mm.” (Col. 7, lines 58-63; emphasis added). Accordingly, neither of the vascularization openings 24, 25 defined by the side wall 22 extend along anywhere near 50% of the overall length of the implant 10. To the contrary, the opening 24 extends along only about 25% of the overall length of implant 10 (7.0mm out of 26mm), and the opening 25 extends along only about 20% of the overall length of the implant 10 (5.0mm out of 26mm). Furthermore, the ‘909 patent specifically

indicates that “[i]t has been found that these dimensions of the vascularization openings 24, 25 and slots 27 provide optimum bone ingrowth and vascularization. In addition, these openings are not so large that they compromise the structural integrity of the device or that they permit the bone graft material contained within the hollow interior 15 to be easily expelled during implantation.” (Col. 7, line 67 to col. 8, line 6; emphasis added; see also, col. 6, lines 41-46).

In summary, the ‘909 patent fails to disclose or even suggest that the vascularization openings 24, 25 extend along at least about 50% of the length of the implant, and in fact teaches away from this concept. Indeed, the ‘909 patent specifically teaches that the size of the openings 24, 25 must not be so large as to “compromise the structural integrity” of the implant, and must not be sized so large as to permit bone graft material “to be easily expelled during implantation”. On the other hand, independent claim 13 specifically recites that the side wall opening “is sized to extend along at least about 50% of said length of said body to allow passage of osteogenic material into said interior chamber”. Thus, while independent claim 13 recites a side wall opening that is provided with a relatively large size to allow passage of osteogenic material into the interior of the implant, the ‘909 patent specifically teaches that the vascularization openings 24, 25 must be provided with a relatively small size to prevent bone graft material from being expelled from the interior of the implant. As should be apparent, if the openings 24, 25 are sized to prevent bone graft material from being expelled from the interior of the implant, the openings 24, 25 would likewise fail to allow passage of bone graft material into the interior of the implant.

The Applicant therefore submits that the ‘909 patent clearly indicates that neither of the vascularization openings 24, 25 extend along anywhere near 50% of the overall length of the implant 10, and the ‘909 patent specifically teaches away from increasing the size of the openings 24, 25 to extend along 50% of the overall length of the implant 10, for to do so would compromise the structural integrity of the implant body and would permit expulsion of the bone graft material from the hollow interior. For at least these reasons, the Applicant respectfully requests withdrawal of the rejection of independent claim 13 and allowance of the same. Claims 62-64 and 66-69 depend either directly or indirectly from independent claim 13, and are submitted to be patentable for at least the reasons supporting the patentability of independent claim 13.

Page 13 of 16

Response to final Office Action and Advisory Action
Application Serial No. 09/869,813
Inventors: Boyd et al.
Filing Date: January 3, 2002

Independent Claim 34 and Dependent Claims 35-37 and 71-74

The Applicant has cancelled independent claims 34 without prejudice for possible submission in a continuing application. Additionally, as indicated above, dependent claim 71 has been indicated as allowable, and the Application has rewritten claim 71 in independent form. Additionally, claims 35-37, 72 and 73 have been amended to depend from rewritten independent claim 71, and claims 37 and 74 have been amended to correct informalities. Accordingly, the Applicant submits that rewritten independent claim 71 and claims 35-37 and 72-74 depending therefrom are in condition for allowance.

Independent Claim 52 and Dependent Claims 54, 56 and 75

Independent claim 52 recites, among other elements and features, an elongate body having end walls and a side wall which define an interior chamber, with the side wall defining "a main side wall opening configured to extend along at least about 50% of the length of said body for passage of osteogenic material into said interior chamber", with "said end walls each having an external profile comprising a first portion defining an arc of a circle . . . extending from 180° to 324° around the circle [and] . . . a second portion defining a concave surface with said main side wall opening extending through said concave surface and into communication with said interior chamber", and with "said side wall having an external profile defining an arc of a circle . . . extending from 180° to 324° around the circle and aligned with the arc defined by said end walls".

As discussed above with regard to independent claim 13, the '909 patent fails to disclose or even suggest that the implant body includes "a main side wall opening configured to extend along at least about 50% of the length of said body for passage of osteogenic material into said interior chamber", as recited in independent claim 52. Indeed, the '909 patent clearly indicates that neither of the vascularization openings 24, 25 extends along anywhere near 50% of the overall length of the implant 10. Furthermore, the '909 patent specifically teaches away from increasing the size of the openings 24, 25 to extend along 50% of the overall length of the implant 10, for to do so would compromise the structural integrity of the implant body and would permit expulsion of the bone graft material from the hollow interior.

Page 14 of 16

Response to final Office Action and Advisory Action
Application Serial No. 09/869,813
Inventors: Boyd et al.
Filing Date: January 3, 2002

Additionally, as shown in Figure 2 and 4 of the '909 patent, the end 12 of the implant 10 does not have "an external profile comprising a first portion defining an arc of a circle . . . extending from 180° to 324° around the circle", as recited in independent claim 52. Although the upper and lower walls of the implant 10 appear to extend along an arc of a circle, the upper and lower walls do not extend from 180° to 324° around the circle. To the contrary, the '909 patent specifically teaches that "with the truncated side walls 22, the device 10 gives the appearance at its end view of an incomplete circle in which the sides are cut across a chord of the circle [and] . . . the truncated side walls 22 are formed along parallel chord lines . . . so that the removed arc portion of the circle roughly subtends 90° at each side of the device." (Col. 6, lines 20-29; emphasis added). Accordingly, although the implant 10 includes arc-shaped upper and lower walls, neither of these arc-shaped walls extend "from 180° to 324° around the circle".

Additionally, the implant 10 does not have an external profile including "a second portion defining a concave surface with said main side wall opening extending through said concave surface and into communication with said interior chamber", as recited in independent claim 52. The arc-shape upper and lower walls defining the external profile of the implant are clearly convex, and the truncated side walls of the implant 10 are flat or planar. As a result, the '909 patent fails to disclose or suggest yet another feature recited in independent claim 52. Also, independent claim 52 further recites that "said side wall having an external profile defining an arc of a circle . . . extending from 180° to 324° around the circle and aligned with the arc defined by said end walls". The '909 patent likewise fails to disclose or suggest these features.

For at least these reasons, the Applicant respectfully requests withdrawal of the rejection of independent claim 52 and allowance of the same. Claims 54, 56 and 75 depend from independent claim 52, and are submitted to be patentable for at least the reasons supporting the patentability of independent claim 52.

Page 15 of 16

Response to final Office Action and Advisory Action
Application Serial No. 09/869,813
Inventors: Boyd et al.
Filing Date: January 3, 2002

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the Applicant's application is now in condition for allowance with pending claims 1, 2, 5-15, 17, 18, 20, 35-37, 52, 54, 56 and 59-75.

Reconsideration of the subject application is respectfully requested. Timely action towards a Notice of Allowability is hereby solicited. The Examiner is encouraged to contact the undersigned by telephone to resolve any outstanding matters concerning the subject application.

Respectfully submitted,

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Page 16 of 16

Response to final Office Action and Advisory Action
Application Serial No. 09/869,813
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